

- 1 -

## HAIR EXTENSION APPLICATOR

DESCRIPTION

The object of the present invention is a hair extension applicator, of the kind used to lengthen and/or thicken head hairs by applying additional hair extensions, usually called *hair extensions*, to natural hair.

In the art several kinds of additional hair extensions are known. Generally, they provide a quantity of joined additional hair, at a common proximal end, of a fixing element the nature thereof could be extremely variable.

In fact, fixing elements were described comprising adhesives sensible to pressure and/or heat, thermoplastic material, termomelting or termosetting materials and so on. Generally, the most widespread application techniques provide that a pressure be applied on the fixing element, in case together with heat or also ultrasound, for example, in order to activate adhesion of the fixing element. The pressure application is often followed by a handling of the fixing element with the purpose of verifying the adhesion success and the connection sizes inside the head hair, before the connection itself solidifies and it could not be modified.

To carry out these application techniques a wide use of pliers is made which, with proper changes, can apply pressure and heat, or pressure and ultrasounds, and so on, at the same time. The use of more and more perfect pliers allowed speeding up and making the application of additional hair extensions and the control of the connection sizes easier.

In the Italian patent application No. RM2001A000317 of 7 June 2001 in the name of the same Applicant, a set of extensions approached one to the other and applicable in a single solution thanks to the use of an adhesive tape supporting the respective fixing elements is described.

The application occurs by applying pressure on all fixing elements at the same time by means of said adhesive tape which allows, apart from the multiple connections for all the extensions of the set, also a precise control of the sizes of the connections themselves and the use then of a lower quantity of thermoplastic substance which translates into a smaller connection, practically not perceptible to the touch.

In this example, the contemporary application of pressure on all the fixing elements of the extensions occurs by using pliers equipped with elongated pressing members, so as to encompass and squeeze all fixing elements with one single movement.

The pliers used so far in this kind of applications were not wholly satisfactory and

REPLACED BY  
ART 34 AMDT

- 16 -

CLAIMS

1. Hair extension applicator (1), of the kind used to lengthen and/or thicken head hairs by applying additional hair extensions to natural hair, comprising a handle (2), at least a fixed jaw member (7) and at least a pressing member (9), the latter apt to receive therebetween a portion of head hair and one or more fixing elements of respective additional hair extensions, and actuation means (11) of said at least a pressing member (9), characterized in that said at least a pressing member (9) is controlled by said actuation means (11) in a bidirectional translation motion to apply a predetermined pressure with respect to said at least a fixed jaw member (7) operating as contrast means to the action of said at least a pressing member (9).
2. Hair extension applicator (1), of the kind used to lengthen and/or thicken head hairs by applying additional hair extensions to natural hair, characterized in that it comprises a handle (2) and a pair of jaws (6, 7) fixed and adjacent therebetween, supported on said handle (2), apt to receive therebetween a portion of head hair and one or more fixing elements of respective additional hair extensions, a first jaw (6) of said pair supporting at least a pressing member (9) and actuation means (11) of said at least a pressing member (9), the second jaw (7) acting as fixed jaw member as contrast means to the action of said at least a pressing member (9).
3. Applicator (1) according to claim 1 or 2, wherein the actuation means (11) comprises an actuation arm (13) which is pivoted on the pressing member (9), to compensate possible differences in thickness of the head hair.
4. Applicator (1) according to claim 1 or 2, comprising:
  - \* a fixed contrast member (7) being a rest for fixing elements of extensions; and
  - \* a mobile pressing member (9) acting on said fixed member (7), said mobile pressing member (9) being controlled by a pneumatic device (51; 72) of said actuation means, operating at a predetermined pressure.
5. Applicator (1) according to any of the preceding claims, wherein said fixed member (7) comprises a resting plane (10).
6. Applicator (1) according to claim 5, wherein, on both sides, the resting plane (10) is equipped with comb-like means to align the receiving hair.
7. Applicator (1) according to any of the preceding claims, wherein the mobile pressing member (9) has a pressing plane (70) formed on the end of a stem (71).

REPLACED BY  
ART 34 AMDT

- 17 -

8. Applicator (1) according to any of the preceding claims, having a body acting as handle (2) and receives said actuation means (11, 72).
9. Applicator (1) according to claims 7 and 8, wherein the resting plane (10) and the pressing plane (70) are substantially perpendicular to the body development, the axis of the stem (71) being coincident with the body development axis.
10. Applicator (1) according to claim 4, wherein the pneumatic device (72) comprises a simple-effect piston (73) containing a plunger (74) and a spring (75) guaranteeing the return, the piston (73) being powered by a central system (4) through a duct (77), the central system (4) being equipped with a system for adjusting said predetermined pressure.
11. Applicator (1) according to any of the preceding claims, wherein the mobile pressing member (7), at its own pressing plane (70), is heated to activate the adhesion of fixing elements.
12. Applicator (1) according to claim 11, wherein in the mobile pressing member (7) a thermistor (19) is received, electrically powered by a central system (4) at a predetermined voltage thereupon the temperature depends.
13. Applicator (1) according to any of the preceding claims, wherein a control unit (4) comprises a timer which, in response to a command button (26), determines the carrying out of a compression – heating – decompression cycle implementing the joining between extensions and head hair.
14. Applicator (1) according to any of the preceding claims, which is assembled in a specific apparatus (130) comprising an extensible and revolving arm (131) thereon a supporting cable (132) is appended, supporting the applicator (1), said supporting cable being connected to a counter-weight system which virtually annuls the applicator (1) weight for the operator.
15. Applicator (10) according to claims 13 and 14, wherein said apparatus (130) comprises a base (133) supporting said control unit (4) and which is assembled on wheels (134).
16. Applicator (1) according to claim 1 or 2, wherein, in opposition to said pressing member (9), the fixed jaw member (7) has a surface plate (10) manufactured with elastically deformable material.
17. Apparatus (1) according to claim 3, wherein the actuation means (11) comprises an electric motor (14) with its own driving shaft (15), said actuation arm (13) being mechanically engaged to said driving shaft (15) to generate a translation

REPLACED BY  
ART 34 AMDT

- 18 -

motion.

18. Applicator (1) according to claim 3, wherein the actuation arm (13) is inserted in a slideway (18) limiting the stroke thereof.

19. Applicator (1) according to claim 4, wherein the return of the pressing member (9) is guaranteed thanks to elastic members (54) extended between the pressing member (9) and the respective jaw (6).

20. Applicator (1) according to claim 2, wherein said first jaw (6) comprises, on its own inner surface facing the second jaw (7), a recess (8) receiving the pressing member (9).

21. Applicator (1) according to any of the claims 1 to 10, having activation means of the fixing elements of the additional hair extensions comprising the pressing member (9) and a vibrating member able to transmit vibrations with substantially ultrasonic frequency which can melt, by intermolecular friction, a thermoplastic substance constituting a fixing element.

22. Applicator (1) according to claim 21, wherein said second jaw (7) operates as vibrating member, being connected to said vibration-generating means (60) received inside the handle (2), in cooperation with the action of the pressing member (9).

23. Applicator (1) according to claim 1, wherein said pressing member (9) operates as mobile jaw member which translates with respect to the fixed jaw member (7) and with respect to a guide of the pressing member (9) connected to said handle.

REPLACED BY  
ART 34 AMDT